

Knut Grimsrud  
48009 SW Morel Ln.  
Forest Grove, OR 97116  
  
Home (503) 359-4856  
Work (503) 264-8419

## DeLorean Club of Oregon News & Information



Dec. 21, 1998

### Another Great Year by Knut Grimsrud

You may have noticed that an issue of the DeCO newsletter was missed this summer. Despite the impression this may give, there has been a lot of local and national DeLorean activity over the summer months. Between building my new home and handling various other responsibilities I've been spread a little thin lately which accounts for the lack of communication over the last several months.

As I mentioned, there has actually been a lot of local and national activity over the summer



Rob Grady's green DMC has such a luster that it's hard to tell what color it is in this photo due to the reflections of the sky.



Red was the most popular color for customized DMCs at the DeLorean Car Show in Cincinnati. Notice the abundance of stock DMCs in the background.

months. Nationally, an excellent DeLorean car show was held in Cincinnati sponsored by a local DeLorean enthusiast Ken Koncelick. The superbly planned and executed event included social occasions, vehicle exhibits, products fair, and technical seminars by Robert Grady and Steven Wynne. The final day featured a tour of the DeLorean parts depot, which many consider the Mecca of DeLorean parts inventories.

Numerous reports on the event are available in various forums including the DMCNews 'Zine, which is now also appearing in print as well as in electronic form. You can download an electronic version of the 'Zine at [www.dmcnews.com](http://www.dmcnews.com) along with other great material. Since the event has been covered so well in the various other forums, I won't go into detail here other than to mention that the show included nearly 100 cars and nearly 300 attendees which rates it as one of the best attended DeLorean shows in recent years. The next DeLorean car show that will be sponsored by Ken will be in the year 2000 and will be held at the Rock and Roll Hall of Fame in Cleveland. Watch for developments as the time nears. Highly recommended.

Locally, events that the DeLorean Club of Oregon has either sponsored or participated in include the coastal golf trip to Gearhardt, which is attributed as one of the oldest golf courses west of the Mississippi. Aside from the refreshing seaside breeze, the early summer conditions at the event were ideal for a scenic round at the historic course. I fortunately failed to keep track of the standings. Although I had a slightly off day, as did some of my fellow golfers, we all had a great time enjoying the course, the game, and the company.

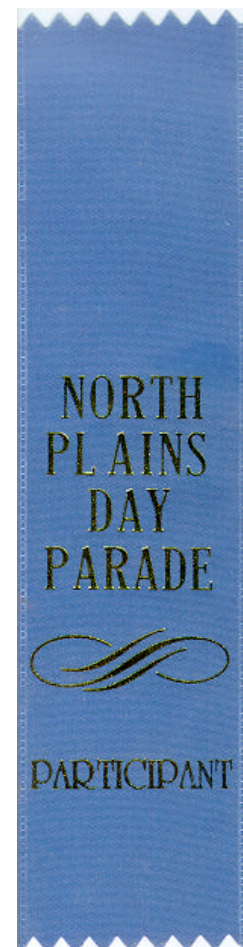
ALL BRITISH FIELD MEET		CLASS
LABOR DAY WEEKEND		
AT PORTLAND INTERNATIONAL RACEWAY		
OWNER Knut	Grimsrud	AA 09
YEAR / MARQUE 1983 DeLorean		
MODEL DMC-12		CAR NO. 100
CLUB DECO		
SWAP MEET SPACE NUMBER		

This ENTRY CARD allows you Direct Admission through the gate Marked "CLASS CARDS". PLEASE DISPLAY THIS ENTRY CARD on LEFT side of Dash for People's Choice/Concours Judging.

The All British Field Meet was held again during Labor Day weekend at Portland International Raceway. With a lot of detailing work and aggressive marketing, I managed once again to place first in the class. Due the few DeLoreans present at the event, there is no

longer a separate DeLorean class and I found myself in the "other" class with some stiff competition from cars that were far rarer and more expensive than my own. Continued success in showing the DeLorean in this forum is an indication of the continued public interest in the car and the appreciation that many hold for it. If you haven't been to the field meet, this is an excellent event that caters to a broad range of auto enthusiasts in a relaxed yet festive setting. After faithfully attending this event over the last several years, I find myself establishing rewarding relationships with a range of auto enthusiasts with similar appreciation for these and other classic cars that I encounter each year at the event.

Having moved out of town a ways, I have developed appreciation for the small-town charms of the outlying communities. As part of the local community we participated in the North Plains garlic festival as part of their parade. I realize that personal preferences vary, but I find the joy little kids see in these events and in seeing the DeLorean satisfying. Similar local community events that I missed include the Forest Grove concourse d'elegance, collector car expo, and similar regional opportunities to participate in the collector and classic car scene. Having the house construction project behind me, I expect more opportunities for better participation in the times to come. If you have questions about past or future DeLorean and related auto events, feel free to give me a call.





## Tips from the Goldsmith – Water Injection for Turbo Equipped Vehicles

Copyright© 1997-1998 Christopher Shepherd

*Chris is a talented goldsmith and gallery owner in Nehalem. He has accumulated years of DeLorean expertise and is currently the owner of a turbo-charged and lowered DeLorean (see the member profile). If you find yourself in the area, a visit with him in his gallery is well worth the time, especially when shopping for that perfect gift for someone special. --Ed.*

3) Check V valve in pressure hose to Tank.  
Napa part #D8DE-AA

4) Tank.  
Aftermarket  
radiator  
overflow tank  
I got at  
NAPA



6) Dripper.  
Standard  
garden  
variety.  
Experiment  
to find the  
right one.

2) Pressurized Hose to Tank

1) Barbed hose fitting  
tapped into pressure side  
of system.

5) Pressure hose from tank.  
This carries water.

Drill and tap into the pressure side of the system (I used the pipe rather than the rail on the engine). Install a barbed host fitting. Attach a hose to this fitting and run it to the top of the pressure tank, with a check valve inline. From the bottom of the tank run a hose to the top of the air inlet on the engine. Put a standard garden dripper (small) on the end and after you have determined the best one to use for flow rate, glue it in the hole you drilled in the plastic cover. When pressure builds in the system, water is forced through the dripper and is fully vaporized as it is drawn through the turbos. The result is an increase in performance and no pre-ignition. All the usual disclaimers apply.

*Chris also submitted the following additional tip. There are a number of oil filters that would work fine on the DeLorean engine if only the oil pressure sender was not in the way. By doing a little basic plumbing illustrated in the following photo, the oil pressure sender can be moved out of the way allowing a broader range of filters to be used on your car. Chris reports that the oil pressure sender uses standard pipe thread, making it relatively easy to do the plumbing.*



## Tech Notes

In the last issue I started a series on the Bosch K-Jetronic mixture control system, and in this issue I'll outline a simple electronic circuit that can be built to monitor the operation of the control system and the resulting air/fuel ratio. For understanding the operation of the fuel injection system and the closed loop lambda mixture control system I used information from the book *Automotive Electric/Electronic Systems* published by Bosch, which is an excellent reference on the operation on many of the Bosch systems in the DeLorean. The design of the mixture monitor circuit was based primarily on my own electronic design experience as well as the information from the LM394 datasheet. As always, the usual disclaimers\* apply.

### Bosch K-Jetronic Mixture Monitor

by Knut Grimsrud

As I indicated in the last issue, the air/fuel mixture in the DeLorean can be measured by the signal from the lambda sensor. The voltage produced by the sensor is related to the air/fuel mixture by the non-linear relationship I graphed in the previous issue. By simply attaching a high-impedance voltmeter to the sensor lead and keeping the voltage to mixture relationship from the last issue in mind, the mixture can be gauged from the voltage reading.

Because the lambda sensor produces a voltage with a very low current output, care must be taken in attempting to measure the output signal from the sensor. Most analog voltmeters will be inadequate for the job and a good digital unit is usually required for a good reading. This must also be kept in mind when building a monitoring circuit, since it is important to avoid the circuit affecting the signal and thereby potentially affecting the operation of the mixture control computer that relies on the lambda signal. Based on the info from the National Semiconductor datasheet for the LM3914 integrated circuit, the circuit I outline here only

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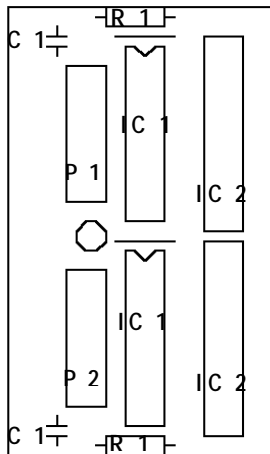
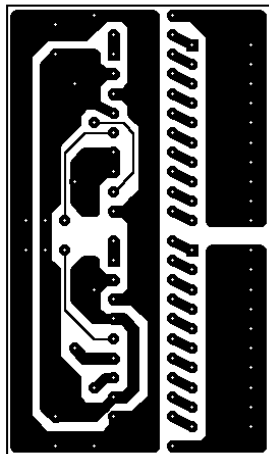
\* Information shared in the DeCO newsletter is not a substitute for sound judgement on your part.

requires about 25nA (that's 25 nano-amps or 25 billionths of an ampere) of current from the sensor, making it an ideal choice for the task.

In order to monitor not only the resulting mixture from the lambda sensor signal, but also the mixture control computer's attempts at controlling it, I designed the circuit as two LED bargraph displays – one for the exhaust gas mixture from the lambda sensor and one for the ECU control signal. In order to allow diagnostics of the computer's operation, the ECU produces an output signal that can be used to determine its attempts at controlling the mixture. This signal is available from the diagnostic plug in the engine compartment located near the firewall on the driver's side (you may not have realized there was such a thing).

The circuit is a pair of simple voltage monitors with adjustable scales. The lambda monitor is configured to monitor voltages with a full-range scale less than 1.25V and the control computer monitor is configured for voltages with full range scale above 1.25V. You'll notice the subtle differences in the circuit for the two similar displays.

R1	100ohm ¼ watt resistor
C1	10uF filter capacitor
P1	10Kohm 20-turn potentiometer
P2	2Kohm 20-turn potentiometer
IC1	LM3914 IC
IC2	10-segment LED or 10 discreet LEDs



## Message from your Coordinator

Despite the apparent lack of activity based on the long duration between newsletters, the DeLorean Club or Oregon has seen lot of activity over the past summer. Due to the pressures of my house construction project, however, I have not had the resources to keep everyone abreast as well as I could have. Now that the construction project is completed and we have settled into our new home, I'm looking forward to things returning to a more normal pace.

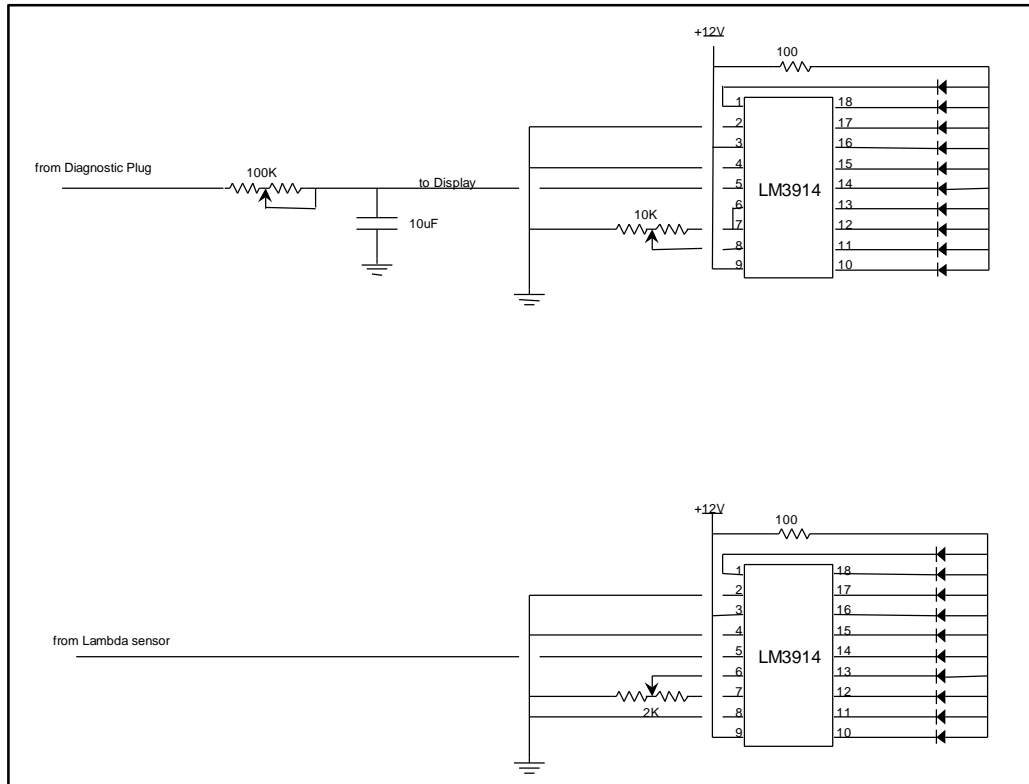
In transitioning to my new home I have come to realize that I'm not in a position to provide the same level of attention to the club that I once did when I had few other responsibilities. If you find the club a valuable asset and would like to see it continue with the same level of involvement as before, I ask that you consider contributing to the club by helping with some of the event selection and planning. At our yearly kickoff meeting (see the events calendar) we'll determine the course of action for the new year and with your support we'll hopefully have another active and rewarding organization.

I'm sorry to report that early this summer the club lost one of its most enthusiastic and supportive members. Those who had the fortune of getting to know him will remember Russ Bachand for his vibrant love of life, his positive outlook, and his enthusiasm. I'm pleased to have gotten to know him and our condolences to his lovely wife.

Because the ECU mixture computer's signal is derived from the signal to the frequency valve, a simple RC filter is used on the input to yield a stable signal for display.

Each LM3914 display driver drives 10 LEDs to form the bargraph. I used integrated 10-segment bargraph displays readily available from most places including Radio Shack. It is also possible to use discreet LEDs to form the display, which is especially useful if one wants to color-code the display based on measured value.

The next few figures show the circuit diagram, printed circuit board pattern, and parts list for the project. Although a printed circuit is not necessary for a simple project like this, it is generally much more reliable than a wired alternative and I generally find that it is faster to etch a circuit board than to do all the corresponding wiring. If there is interest in the circuit I can etch another batch of boards.



In the next issue I'll outline a circuit that can be used to electronically modify the control computer's mixture setpoint.



## Race-Day Mixture Tweaks

by Knut Grimsrud

I've been doing a bit of research on the mixture control system used in the DeLorean. Based on my early findings, I've come to the conclusion that the DeLorean air/fuel mixture control system is optimized for minimized emissions rather than maximized performance. I've also discovered that there is a simple tweak that can be made for day-of-the-race performance optimization that you might find interesting. *Note: It may be illegal in some parts of the country to tamper with the mixture control system since it affects the vehicle's emissions.* This information is provided for your interest only.

Disconnect the Lambda sensor (located on the exhaust system on the driver's side -- most easily accessed from underneath the car) from the wire leading

through the rear bulkhead. With the engine fully warmed up, measure the Lambda sensor voltage (relative to ground) and record this voltage for later use in returning your mixture to the original setting. You must use a high input impedance voltmeter for the measurement (most digital multi-meters are adequate).

Using a long T-handle 3mm Allen wrench, adjust the mixture screw on the fuel distributor until the voltage at the Lambda sensor is about 0.7 volts. Note that removing the plug over the adjustment screw introduces a vacuum leak, so the hole must be plugged before a meter reading can be made.

Leave the Lambda sensor disconnected for the race -- the enriched fixed mixture generally provides better performance and consistency, however, different engines and environments may yield best performance at slightly different

mixture settings, so some experimentation may be required. I've also found that with the richer mixture, the engine may be difficult to start unless the cold start injector is disconnected (this is a blue connector located near the driver's side valve cover). The cold start enrichment with the already enriched mixture setting can make the mixture so rich that the engine is difficult to start.

After the race, set your mixture back to the original setting by adjusting the mixture screw until the voltage at the Lambda sensor is the same as originally recorded and reconnect the sensor to the wire leading through the bulkhead.

***Common sense disclaimer: Information shared by the DeLorean Club of Oregon is no substitute for sound judgement on your part.***



## DeCO Events Calendar

**Saturday Feb. 20, 6:00pm '99 Kickoff Meeting at Stewart Anderson's Cattle Company in Beaverton**  
Participate in determining the future of the club by sharing your views and expertise with your fellow DeLorean owners and enthusiasts. Enjoy a rewarding combination of a hearty meal and shared DMC camaraderie. Please RSVP to Knut by the 16<sup>th</sup> so an appropriately sized table can be reserved.

We'll have a cocktail in the lounge at 6:00 and count on being seated for dinner at 6:30.

## Member Profile: Christopher Shepherd

I was born Corvallis OR in 1944 and raised in Carmel CA where I developed my love of cars and the arts. It's hard for anyone living there in the 50's and 60's to avoid exposure to both. The first auto race I attended was the last "Pebble Beach Road Race." A year or two later it became "Laguna Seca." At the same time the people showing in galleries around town were the likes of Ansel Adams, Cole Weston, Beth Garcia and various painters and sculptors whose work didn't really interest me at that time. I think anyone raised in that atmosphere would develop their own ability not by lesson but rather by osmosis.

I lived in San Francisco in the late 60's, part of the time in an apt. at the corner of Haight and Divisadero, and had a great time. I had a custom Volvo 544, went to the first "Be In" at the polo grounds in Golden Gate Park, the "Avalon Ballroom," "Winterland," "The Fillmore Auditorium." I wasn't a very good "Hippy" as I held a job driving truck for Coke in Oakland. Reverse commute, not too dumb. Also allergic to most drugs, oh well, I didn't miss much. Knew "Mouse" and Kelly, the two that were responsible for most of the great posters that era in SF is known for.

I moved back to Oregon in 1969, bought a small house in Dallas and lived there for about three years. At that time I was working for a store in Carmel as a Jeweler/Goldsmith. I did a lot of "Art Festivals" in the 70's. In '73 I moved to Camas WA where a friend and I opened a gallery at "Parkers Landing." I did the "Bellvue Art Festival" for several years and the last time I did it I was the "Invited Artist". The next year I didn't do it and haven't done any since.

I bought my store in Nehalem OR in 1976. The area reminds me of Carmel in the 50's. I've been a Goldsmith/Jewelry Designer since the late 1960's and for the most part it is very satisfying. I came to the conclusion that I'll never get rich here, but the life style suits me. I get to go fishing when I want to, clamming and crabbing also.

I bought my first DeLorean in 1987. It was an automatic, gray interior and had most of the "normal" problems. Unfortunately the DML hadn't been invented so I had to figure out corrections on my own. This one was my only means of transportation so I got pretty good at troubleshooting and repairs. I drove it for about 4 years and put over 60,000mi on it. Financial problems forced the sale of her, but I was determined to get another as soon as I could. I bought # 6301 about 4 years ago. This one is a 5spd, gray interior, twin turbo and not a daily driver. The difference between the two is amazing. After I got it home I did all the corrections that I had learned from experience, and have had no problems to speak of, except that she doesn't like to run in the rain. Somewhat of a problem when living on the upper left coast. I've put about 20,000mi on her mostly driving between here and Carmel. Never a concern on long trips, just gas her and go. I put water injection on her to give a little better performance and prevent any chance of pre-ignition under boost.

A note to James Espey and Knut Grimsrud: Thank you for the DML. Those of you that didn't own a DeLorean prior to the existence of this resource have no idea what a value it is. People may get the wrong idea about the reliability of these cars because of the nature of the questions presented. I think there should be more good stories and comments by those of us that have very few problems and just work on our cars for the love of it.

Christopher Shepherd

*Editor's note: Chris is a talented goldsmith in Nehalem. A visit with him in his gallery is always worth the trip, especially when looking for a special gift. The successes of the DML are due to the diligent efforts of James Espey with whom I can hardly be compared.*

## **For Sale & Wanted**

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*Advertisement of  
DeLorean related items is  
provided as a service to  
club members free of  
charge. Commercial  
advertisements available  
at negotiated rates and at  
my discretion.*

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Newsletter for regional  
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Contact Knut for details.*

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